BladeCenter
Advanced Management Module

IBM

Installation Guide

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Note:

Before using this information and the product it supports, read the general information in Appendix B, "Notices," on page 33; read the *IBM Safety Information* and the *IBM Systems Environmental Notices and User Guide*; and read the *Warranty and Support Information* document for your device on the IBM *Documentation* CD.

Contents

Safety

Before installing this product, read the Safety Information.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الآمنية

Antes de instalar este produto, leia as Informações de Segurança.

在安装本产品之前，请仔细阅读 Safety Information
(安全信息)。

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας (safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по технике безопасности.

Pred inštaláciou tohto zariadenia si pečítaje Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto, lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

All caution and danger statements in this documentation begin with a number. This number is used to cross reference an English caution or danger statement with translated versions of the caution or danger statement in the *IBM Safety Information* book.

For example, if a caution statement begins with a number 1, translations for that caution statement appear in the *IBM Safety Information* book under statement 1.

Be sure to read all caution and danger statements in this documentation before performing the instructions. Read any additional safety information that comes with your server or optional device before you install the device.

Statement 1:

DANGER

Electrical current from power, telephone, and communication cables is hazardous.

To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet.**
- **Connect to properly wired outlets any equipment that will be attached to this product.**
- **When possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
- **Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.**

To Connect:	To Disconnect:
1. Turn everything OFF.	1. Turn everything OFF.
2. First, attach all cables to devices.	2. First, remove power cords from outlet.
3. Attach signal cables to connectors.	3. Remove signal cables from connectors.
4. Attach power cords to outlet.	4. Remove all cables from devices.
5. Turn device ON.	

Statement 2:

CAUTION:
When replacing the lithium battery, use only IBM Part Number 33F8354 or an equivalent type battery recommended by the manufacturer. If your system has a module containing a lithium battery, replace it only with the same module type made by the same manufacturer. The battery contains lithium and can explode if not properly used, handled, or disposed of.

Do not:

- **Throw or immerse into water**
- **Heat to more than 100°C (212°F)**
- **Repair or disassemble**

Dispose of the battery as required by local ordinances or regulations.

Statement 8:

CAUTION:
Never remove the cover on a power supply or any part that has the following label attached.

Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

Chapter 1. Introduction

This *Installation Guide* contains information about installing your IBM® xSeries® Advanced Management Module. This *Installation Guide* provides the following information:

- Chapter 2, "External indicators, controls, and connectors," on page 7
- Chapter 3, "Installing a management module," on page 11
- Chapter 4, "Configuring the management module," on page 25

The advanced management module is a hot-swap BladeCenter module that you use to configure and manage all installed BladeCenter components. The advanced management module provides system-management functions and keyboard/video/mouse (KVM) multiplexing for all the blade servers in the BladeCenter unit that support KVM. It controls a serial port for remote connection; the external keyboard, mouse, and video connections for use by a local console; and a 10/100 Mbps Ethernet remote-management connection.

The advanced management module is referred to throughout this document as the management module.

All BladeCenter units come with at least one management module. Some BladeCenter units support management-module redundancy. Only one management module can be active in each BladeCenter unit. If you install a standby management module, it remains inactive until it is switched to act as the active management module.

If two management modules are installed in a BladeCenter unit, both must always have the same level of firmware and the same IP address. The firmware must support redundant management-module function, to ensure changeover of control from the active management module to the standby management module. The latest level of management-module firmware is available at http://www.ibm.com/systems/support/.

The service processor in the management module communicates with the service processor in each blade server to support features such as blade-server power-on requests, error and event reporting, KVM requests, and requests to use the BladeCenter shared media tray (removable-media drives and USB connector).

Record information about the management module in the following table.

Product name	IBM BladeCenter Advanced Management Module
Serial number	
Media access control (MAC) address	

The product name, serial number, and media access control (MAC) address are located on the identification label on the side of the management module. The MAC address and the default IP address are on a separate label on the bottom of the front of the management module.

Management module

Release handle

Default IP address, media access control (MAC) address label

Product name, serial number, media access control (MAC) address label
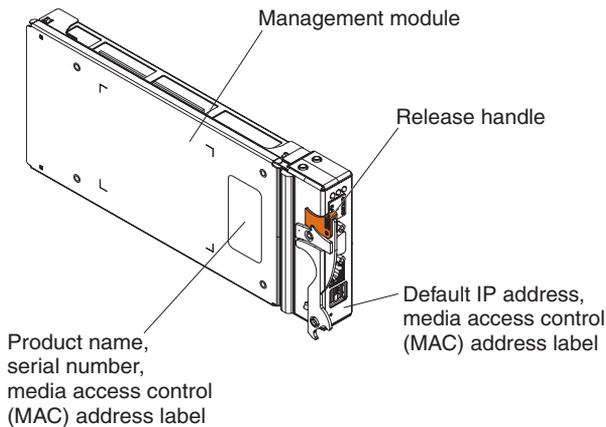
You can obtain up-to-date information about your management module and other IBM server products at http://www.ibm.com/systems/bladecenter/.

Related documentation

In addition to this *Installation Guide*, the following documentation might be on the *Documentation* CD that comes with your management module, in Portable Document Format (PDF). Additional documents might also be included on the *Documentation* CD. The most recent versions of all BladeCenter documentation are at http://www.ibm.com/systems/support/.

• *Safety Information*

   This document contains translated caution and danger statements. Each caution and danger statement that appears in the documentation has a number that you can use to locate the corresponding statement in your language in the *Safety Information* document.

- *IBM BladeCenter Management Module User's Guide*

  This document provides general configuration information for the management-module Web interface, including information about features, how to configure your management module, and how to get help.

- *IBM BladeCenter Management Module Command-Line Interface Reference Guide*

  This document explains how to use the management-module command-line interface (CLI) to directly access management functions as an alternative to using the Web interface. The CLI also provides access to the text-console command prompt on each blade server through a Serial over LAN (SOL) connection.

- IBM *BladeCenter Serial over LAN Setup Guide*

  This document describes how to update and configure BladeCenter components for Serial over LAN (SOL) operation. The SOL connection provides access to the text-console command prompt on each blade server and enables the blade servers to be managed from a remote location.

In addition to the documentation in this library, be sure to review the *IBM BladeCenter Planning and Installation Guide* for your BladeCenter unit for information to help you prepare for system installation and configuration. This document is available at http://www.ibm.com/systems/bladecenter/.

The IBM Documentation CD

Your management module comes with an IBM *BladeCenter Documentation* CD, which contains documentation for your system in PDF and includes the IBM Documentation Browser to help you find information quickly.

System requirements

To run the CD, use a system that has the following minimum hardware and software:

- Microsoft Windows NT 4.0 (with Service Pack 3 or later), Windows 2000, SUSE LINUX, or Red Hat Linux®.
- 700 MHz Intel® microprocessor.
- 32 MB RAM.
- Adobe Acrobat Reader 3.0 (or later) or xpdf, which comes with Linux operating systems. Acrobat Reader software is included on the CD, and you can install it when you run the Documentation Browser.

Using the Documentation Browser

Use the Documentation Browser to browse the contents of the CD, read brief descriptions of the documents, and view documents, using Adobe Acrobat Reader or xpdf. The Documentation Browser automatically detects the regional settings in use in your system and presents the information in the language for

that region (if available). If a topic is not available in the language for that region, the English-language version is displayed.

Use one of the following procedures to start the Documentation Browser:

- If Autostart is enabled, insert the CD into the drive. The Documentation Browser starts automatically.
- If Autostart is disabled or is not enabled for all users:
  - If you are using a Windows operating system, insert the CD into the drive, and click **Start ‣ Run**. In the **Open** field, type

    ```
    e:\win32.bat
    ```

    where *e* is the drive letter of the drive, and click **OK**.
  - If you are using a Linux operating system, insert the CD into the drive, and run the following command from the /mnt/cdrom directory:

    ```
    sh runlinux.sh
    ```

Select your computer from the **Product** menu. The **Available Topics** list displays all the documents for your BladeCenter product. Some documents might be in folders. A plus sign (+) indicates each folder or document that has additional topics under it. Click the plus sign to display the additional documents.

When you select a document, a description of the document appears under **Topic Description**. To select more than one document, press and hold the Ctrl key while you select the documents. Click **View Book** to view the selected document or documents in Acrobat Reader or xpdf. If you selected more than one document, all the selected documents are opened in Acrobat Reader or xpdf.

To search all the documents, type a word or word string in the **Search** field and click **Search**. The documents in which the word or word string appears are listed in order of the most occurrences. Click a document to view it, and press Ctrl+F to use the Acrobat search function or press Alt+F to use the xpdf search function within the document.

Click **Help** for detailed information about using the Documentation Browser.

Notices and statements in this document

The caution and danger statements that appear in this document are also in the multilingual *Safety Information* document, which is on the *IBM BladeCenter Unit Documentation* CD. Each statement is numbered for reference to the corresponding statement in the *Safety Information* document.

The following types of notices and statements are used in this document:

- **Note:** These notices provide important tips, guidance, or advice.
- **Important:** These notices provide information or advice that might help you avoid inconvenient or problem situations.
- **Attention:** These notices indicate possible damage to programs, devices, or data. An attention notice is placed just before the instruction or situation in which damage could occur.
- **Caution:** These statements indicate situations that can be potentially hazardous to you. A caution statement is placed just before the description of a potentially hazardous procedure step or situation.
- **Danger:** These statements indicate situations that can be potentially lethal or extremely hazardous to you. A danger statement is placed just before the description of a potentially lethal or extremely hazardous procedure, step, or situation.
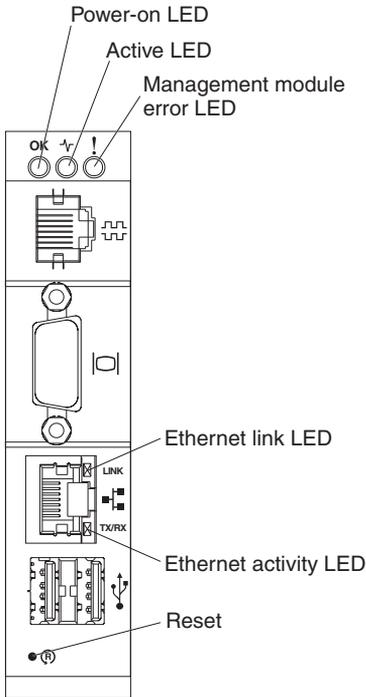
Chapter 2. External indicators, controls, and connectors

This chapter describes the indicators, controls, and external connectors on the management module.

Management-module indicators and controls

The following management-module LEDs provide status information about the management module and remote-management connection.

- **Power-on LED**: When this green LED is lit, it indicates that the management module has power.
- **Active LED**: When this green LED is lit, it indicates that the management module is actively controlling the BladeCenter unit. Only one management module actively controls the BladeCenter unit. If two management modules are installed in the BladeCenter unit, this LED is lit on only one module.
- **Management module error LED**: When this amber LED is lit, it indicates that an error has been detected in the management module. When this LED is lit, the BladeCenter unit system error LED is also lit.

- **Ethernet Link LED**: When this green LED is lit, there is an active connection through the port to the network.
- **Ethernet activity LED**: When this green LED is flashing, it indicates that there is activity through the port over the network link.
- **Reset button**: When you press this button the blowers operate at full speed while the management module is initializing.
  - Press and release the reset button to restart the management module.
  - Press and hold the reset button for 8 seconds to restore the management module to factory default settings.

Management-module input and output connectors

The management module has a serial connector, a video connector, a remote management and console connector, and two USB connectors for keyboard and mouse.

Serial connector

Video

Remote management and console (Ethernet)

Two USB ports for mouse and keyboard
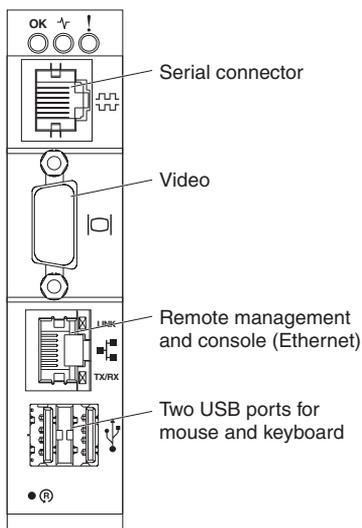
- **Serial connector**: Use this connection to configure and manage the BladeCenter components over a serial line through the management-module command-line interface (CLI). This connector provides local access to the CLI and redirection to the Serial over LAN (SOL) interface of any blade server. For example, you can connect a notebook computer to the serial connector and a terminal emulator program to configure the IP addresses, user accounts, and other management settings through the CLI user interface. See the management-module *Command-Line Interface Reference Guide* for more information.

- **Video connector**: Use this connector to connect a compatible SVGA or VGA video monitor to the BladeCenter unit. See "Management-module video settings" on page 17 for more information about compliant video settings.
- **Remote management and console (Ethernet) connector**: Use this connector for an Ethernet remote connection to a network-management station on the network. See "Configuring remote access" on page 26 for more information about remote configuration.
- **Two USB ports for mouse and keyboard**: Use these two connectors for local mouse and keyboard connectivity. Unlike a BladeCenter unit, which has USB connectors on the media tray, the blade servers share the management-module USB ports through the BladeCenter KVM interface. The KVM interface has ownership of these ports.

Chapter 3. Installing a management module

See the *Installation and User's Guide* that comes with your BladeCenter unit type for specific management-module bay locations and installation information.

Installation guidelines

Before you install the management module, read the following information:

- Read the safety information that begins on page v and "Handling static-sensitive devices" on page 12, and read the safety statements in the BladeCenter unit documentation.

- The orange color on components and labels in your BladeCenter unit identifies hot-swap components. You can install or remove hot-swap modules and, with some restrictions, hot-swap blade servers while the BladeCenter unit is running. For details about installing or removing a management module, see the detailed information in this chapter.

- For a list of supported options for your BladeCenter unit, see http://www.ibm.com/servers/eserver/serverproven/compat/us/.

System reliability guidelines

To help ensure proper BladeCenter cooling and system reliability, make sure that the following requirements are met:

- Each of the module bays on the front and rear of the BladeCenter unit has either a module or a module filler installed.

- Each of the blade server bays on the front of the BladeCenter unit has either a blade server or a blade filler installed.

- Each of the drive bays in a blade-server storage expansion option has either a hot-swap drive or a panel filler installed.

- Replace a removed hot-swap module, blade server, or drive within 1 minute of removal.

- Route cables for optional modules according to the documents that come with the modules.

- Replace a failed blower as soon as possible to restore cooling redundancy. See the BladeCenter *Hardware Maintenance Manual and Troubleshooting Guide* for instructions.

Failure to replace a blade server or module with another blade server, module, blade filler, or module filler within 1 minute can affect performance in the blade servers.

Handling static-sensitive devices

Attention: Static electricity can damage the BladeCenter system and other electronic devices. To avoid damage, keep static-sensitive devices in their static-protective packages until you are ready to install them.

To reduce the possibility of electrostatic discharge (ESD), observe the following precautions:

- See the *Installation and User's Guide* that comes with your BladeCenter unit to locate the ESD connector. Not all BladeCenter units have a ESD connector.
- Limit your movement. Movement can cause static electricity to build up around you.
- Handle the device carefully, holding it by its edges or its frame.
- Do not touch solder joints, pins, or exposed printed circuitry.
- Do not leave the device where others can handle and damage it.
- While the device is still in its static-protective package, touch it to an unpainted metal part of the BladeCenter unit or any unpainted surface on any other grounded rack component for at least 2 seconds. This drains static electricity from the package and from your body.
- Remove the device from its package and install it immediately without setting down the device. If it is necessary to set down the device, put it back into its static-protective package.
- Take additional care when handling devices during cold weather. Heating reduces indoor humidity and increases static electricity.

Hardware and software requirements

The management module supports the following Web browsers for remote (client) access. The client Web browser must be Java-enabled, must support JavaScript 1.2 or later, and must have the Java Virtual Machine (JVM) version 1.4.2-08 or later (but earlier than 1.5) Plug-in installed. The JVM Plug-in is available from http://www.java.com.

- Microsoft Internet Explorer 5.5 or later (with latest Service Pack installed)
- Netscape Navigator 7.0 or later
- Mozilla FireFox version 1.3 or later

Note: The Remote Disk feature works only with the Microsoft Windows 2000 operating system or later.

The following server operating systems have USB support, which is required for the Remote Control feature:

- Microsoft Windows Server 2003
- Microsoft Windows 2000 with Service Pack 4 or later
- Red Hat Linux version 7.3
- SUSE LINUX version 8.0
- Novell NetWare 6.5

The management-module Web interface does not support double-byte character set (DBCS) languages.

Installing a management module

The following illustration shows how to install a management module in a BladeCenter unit. Your BladeCenter unit might differ from the illustrations in this document.

When you install a management module, if the BladeCenter unit is not connected to a DHCP server on the network, it takes up to 3 minutes for the management module to use the default (static) IP address.

Attention: To maintain proper system cooling, each module bay must contain either a module or a module filler.
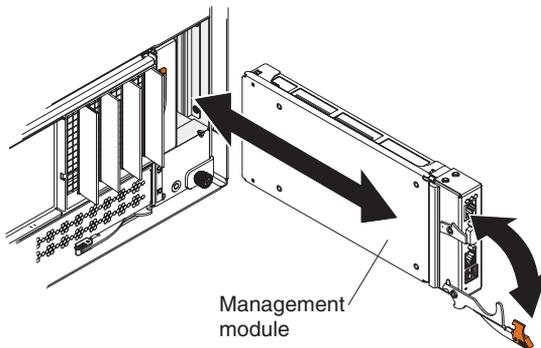
Management
module

Notes:
1. If you replace a standby management module, it must be of the same type as the active management module.
2. These instructions assume that the BladeCenter unit is connected to power.
3. After failover, you might need to wait as long as 5 minutes to establish a network connection to the management module. Some networks include switches, routers, and hubs which do not allow (or relay) an address

resolution protocol (ARP) from the new management module to update the network cached ARP table. Without this information relay, the new MAC address/IP association will not recognize the management module. This condition will correct itself after the ARP table times out. To prevent this condition, reconfigure the network-routing setup tables to enable ARPs to be relayed from the management module.

To install a management module, complete the following steps:

1. Read the safety information that begins on page v and "Installation guidelines" on page 11 through "Handling static-sensitive devices" on page 12.

2. If you are installing a secondary management module, read "Preparing for management-module redundancy" on page 16.

3. Remove any external devices that are blocking access to the rear of the BladeCenter unit. See the *Installation and User's Guide* for your BladeCenter unit for instructions.

4. If you are replacing the only management module in the BladeCenter unit, and the management module is functional, save the configuration file before you proceed. To save the configuration file and restore it to the replacement management module, see the management-module *User's Guide* or the *Command-Line Interface Reference Guide* for instructions.

5. If you are replacing a management module, remove the current module from the bay (see "Removing a management module" on page 15). If you are adding a new management module, remove the module filler from the selected management-module bay and store the module filler for future use.

6. If you have not already done so, touch the static-protective package that contains the replacement management module to an unpainted metal part of the BladeCenter unit or any unpainted surface on any other grounded rack component for at least 2 seconds.

7. Remove the management module from its static-protective package.

8. Make sure that the release handle on the management module is in the open position (perpendicular to the module).

9. Slide the management module into the selected management-module bay until it stops.

10. Push the release handle on the front of the management module to the closed position.

11. Make sure that the power-on LED on the management module is lit. This indicates that the management modules are operating correctly. See "Management-module indicators and controls" on page 7 to locate the LED.

12. Connect the cables to the management module. See "Management-module video settings" on page 17 for more information.

13. Replace any external components that you removed in step 3 on page 14.

14. If this is the only management module in the BladeCenter unit, configure the new management module. See Chapter 4, "Configuring the management module," on page 25 for more information.
If this is a standby management module, and you followed the instructions in "Preparing for management-module redundancy" on page 16, no configuration is necessary.

15. If you are using BladeCenter Open Fabric Manager (BOFM), perform the following steps to ensure BOFM configuration is properly copied to the secondary management module:

   a. From the AMM web interface, select **MM Control** → **Restart AMM** and click **Switch Over**.

   b. Wait until the original management module becomes primary. This may take several minutes.

   c. Wait for the system to synchronize the configuration. This may take up to an hour.

   d. If you want to change the primary management module, perform the switchover action again. The replaced management module becomes primary at this point and BOFM configuration is available on the new management module.

The standby management module receives the configuration and status information automatically from the active management module. The transfer of information to the standby management module can take up to 45 minutes after it is installed.

Removing a management module

Notes:

1. These instructions assume that the BladeCenter unit is connected to power.

2. If you are replacing the only management module in the BladeCenter unit and the management module is functioning, save the configuration file before you proceed. See the management-module *User's Guide* or the *Command-Line Interface Reference Guide* for instructions for saving and restoring a configuration file.

3. If you have just installed a standby management module in the BladeCenter unit, do not remove the active management module for 1 hour; the standby management module needs the time to receive initial status information and firmware from the active management module.

To remove a management module, complete the following steps:

1. Read the safety information that begins on page v and "Installation guidelines" on page 11 through "Handling static-sensitive devices" on page 12.

2. If you are removing the active management module in the BladeCenter unit, stop all management-module local and remote sessions before you proceed, to avoid an unexpected termination of sessions.

3. Save the management-module configuration file. See the management-module *User's Guide* for instructions.

4. Remove any external devices that block access to the rear of the BladeCenter unit. See the *Installation and User's Guide* for your BladeCenter unit for instructions.

5. Disconnect any cables from the management module.

6. Pull the release handle all the way toward the bottom of the management module until it stops, as shown in the illustration. The module moves out of the bay approximately 0.6 cm (0.25 inch).
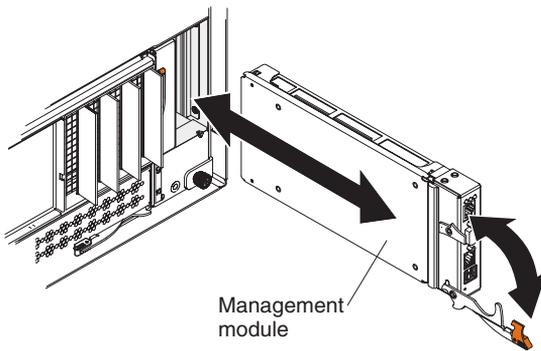
Management
module

7. Slide the module out of the bay and set it aside. Within 1 minute, place either another module of the same type or a module filler in the bay.

Preparing for management-module redundancy

To prepare your management modules for redundancy, complete the following steps:

1. Install the standby management module in the available management-module bay.

2. Wait 1 hour while the active management module transfers firmware and configuration information to the standby management module.

The management modules are now prepared for redundancy.

Note: For the most recent version of IBM Director software that you can use to manage redundant management modules, see http://www.ibm.com/ systems/support/.

See the management-module *User's Guide* or *Command-Line Interface Reference Guide* for more information about configuring the management module.

Management-module video settings

The following table lists the video resolution and refresh-rate combinations for KVM-equipped blade servers that are supported for all system configurations.

Table 1. Compliant video settings

Resolution	Refresh rate
640 x 480	60 Hz
640 x 480	72 Hz
640 x 480	75 Hz
640 x 480	85 Hz
800 x 600	60 Hz
800 x 600	72 Hz
800 x 600	75 Hz
800 x 600	85 Hz
1024 x 768	60 Hz
1024 x 768	70 Hz

Cabling the KVM

One function of the management module is to provide keyboard, video, and mouse (KVM) access to the blade servers in the BladeCenter unit. Keep the following parameters in mind when using this feature:

- If you are using a remote session to communicate with the blade servers in the BladeCenter unit, you do not need to connect a local KVM to the active management module.
- Some blade servers do not support KVM access. You need to access these through the CLI or the serial over LAN (SOL) feature.
- You cannot use the KVM local interface to directly access the management module.

Note: If the BladeCenter unit only has one management module, then that is the active management module. If the BladeCenter unit also has an optional standby management module, the active management module will have the green Active LED lit.

See "Management-module input and output connectors" on page 8 for the location of each connector. Cable the KVM to the active management module, observing the following guidelines:

- **Connect a keyboard and mouse to the USB ports** - Connect a USB keyboard and USB mouse to USB connectors on the active management module.

- **Connect a monitor to the video port** - Connect the video cable to the video connector on the active management module.
- **Cable only to the active management module**- If the system transfers active status to the standby management module, move the keyboard, video, and mouse cables to the management module that is now active.
- **Cable to both the active and standby management modules** - If you have a second keyboard, monitor, mouse, and Ethernet cable connected to the standby management module, no switching or recabling is required when the system transfers active status to the standby management module.

Connecting the management module to the network

The management module supports network connection through the remote management and console (Ethernet) connector or a CLI-only connection through the serial connector. You can manage the BladeCenter unit through the graphical-user interface that is provided by the management-module Web interface or through the CLI that you access through a terminal emulator program, a Secure Shell (SSH) server, or the serial connector.

All management-module network connections to blade servers that do not support KVM are made through the CLI. You can perform initial configuration of the management module after you connect it to your network; however, because some requirements are imposed by the default management-module settings, it might be easier to perform these setup operations through a temporary connection.

You can access the management-module Web interface through a network or through a computer that is connected directly to the management module. To connect to the management-module Web interface, you need the following equipment and information:
- A computer with Internet browser capability. To facilitate connections at multiple locations, you can use a notebook computer.
- The management-module MAC address (listed on the label on the management module).
- For a networked connection to the management module, you need the following equipment:
  - A standard Ethernet cable
  - A local Ethernet network port (facility connection)
- For direct connection of a computer to the management-module remote management and console (Ethernet) connector, you need an Ethernet cable.

Network connections through the serial connector can access only the management-module CLI. See the management-module *Command-Line Interface*

Reference Guide for information about accessing the management-module CLI. The following sections describe how to make typical network connections for a management module.

Networked connection

To connect the Ethernet cable to the management module, complete the following steps:

1. Connect one end of a Category 5 or higher Ethernet cable to the remote management and console (Ethernet) connector on the management module. Connect the other end of the Ethernet cable to the network.
2. Check the Ethernet LEDs to make sure that the network connection is working.
   - When the green Ethernet LINK LED is lit, there is an active connection through the port to the network.
   - When the green Ethernet activity (TX/RX) LED is flashing, it indicates that there is activity through the port over the network link.

The following illustration shows the locations of the Ethernet LEDs.
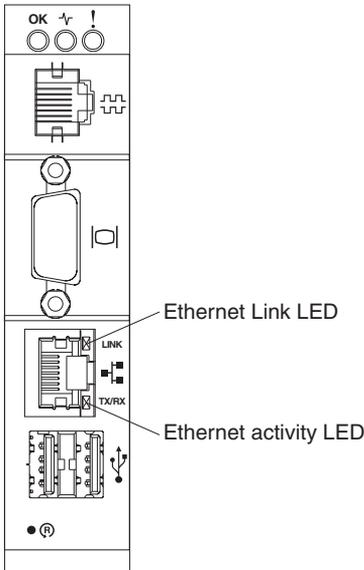
Direct client connection

To connect the Ethernet cable directly to the management module, complete the following steps:

1. Connect one end of a Category 5 or higher Ethernet cable to the remote management and console (Ethernet) connector on the management module.

2. Connect the other end of the Ethernet cable to the Ethernet connector on the client computer.

3. Check the Ethernet LEDs to make sure that the network connection is working.
   - When the green Ethernet LINK LED is lit, there is an active connection through the port to the network.
   - When the green Ethernet activity (TX/RX) LED is flashing, it indicates that there is activity through the port over the network link.

Serial connection

To connect the serial cable to the management module, complete the following steps:

1. Remove the serial-connector cover on the management module, if one is installed.

2. Connect one end of an RJ-45 serial cable to the serial connector on the management module.

3. Connect the other end of the serial cable to the serial connector of the client computer, such as a notebook computer.

4. Configure the serial port of the client computer to the following values:
   - Baud rate = 57600
   - Parity = none
   - Stop bits = 1

The serial cable must have the following characteristics.

RJ-45 signal	RJ-45 pins	RJ-45 cable	DB9 signal	DB9 pins
TxD out	6	yellow	RxD in	2
RxD in	5	green	TxD out	3
RTS out	8	white	CTS in	8
CTS in	7	brown	RTS out	7
DTR out	3	black	DSR in	6
DSR in	1	blue	DTR out	4
DCD in	2	orange	DCD in	n/a
RI in	n/a	n/a	RI in	n/a
GND	4	red	GND	5

Connecting a remote console to the management module for the first time

The following sections describe how to connect a remote console to the management module to perform initial configuration of the BladeCenter unit. The management module has the following default settings:

- IP address: 192.168.70.125
- Subnet: 255.255.255.0
- User ID: USERID (all capital letters)
- Password: PASSW0RD (note the number zero, not the letter O, in PASSW0RD)

By default, the management module is configured to respond to DHCP first before using its static IP address.

The client computer that you connect to the management module must be configured to operate on the same subnet as the management module. The IP address of the management module must also be in the same local domain as the client computer. To connect to the management module for the first time, you must change the Internet protocol properties on the client computer.

There are two interfaces that you can use to connect to the management module for the first time. If you are connecting to the management module through an Ethernet connection, you can open a Web browser and use the Web interface, or you can use Telnet to connect to the management module and use the CLI to configure the module. If you are connecting through a serial connection, you can use a terminal emulator to access the CLI.

Ethernet connection (Web interface)

After you connect the Ethernet cable from the management module to the client computer, complete the following steps:

1. Make sure that the subnet of the client computer is set to the same value as the default management-module subnet (255.255.255.0).
2. Open a Web browser on the client computer, and direct it to the default management-module IP address (192.168.70.125).
3. Enter the default user name, USERID, and the default password, PASSW0RD (note the number zero, not the letter O, in PASSW0RD), to start the remote session.
4. Follow the instructions on the screen. Make sure that you set the timeout value that you want for your Web session.

After you connect the client computer to the management module for the first time, perform initial configuration of the BladeCenter unit. See the management-module *User's Guide* for configuration instructions.

Ethernet connection (CLI)

After you connect the Ethernet cable from the management module to the client computer, complete the following steps:

1. Make sure that the subnet of the client computer is set to the same value as the default management-module subnet (255.255.255.0).

2. Open a console window and log in to the default management-module IP address (192.168.70.125).

3. Enter the default user name, USERID, and the default password, PASSW0RD (note the number zero, not the letter O, in PASSW0RD), to start the remote session.

After you connect the client computer to the management module for the first time, perform initial configuration of the BladeCenter unit. See the management-module *User's Guide* for configuration instructions.

Serial connection (CLI)

After you connect the serial cable from the management module to the client computer, complete the following steps:

1. Make sure that the serial port of the client computer is set to the following settings:
   - Baud rate = 57600
   - Parity = none
   - Stop bits = 1

2. Open a terminal emulator window and establish a connection to the management-module serial port.

3. Enter the default user name, USERID, and the default password, PASSW0RD (note the number zero, not the letter O, in PASSW0RD), to start the remote session.

After you connect to the management module for the first time, perform initial configuration of the BladeCenter unit. See the management-module *User's Guide* for GUI-configuration instructions or the management-module *Command-Line Interface Guide* for CLI-configuration instructions.

Removing the battery

The management module battery is not a field or customer replaceable item. When a management module is no longer needed, remove the battery from the module and recycle or properly dispose of both the management module and battery according to applicable local and national ordinances or regulations. (See the *IBM Systems Environmental Notices and User Guide* document on the IBM *Documentation* CD for additional information).

To remove the battery, complete the following steps:

1. Read the safety information that begins on page v and the "Installation guidelines" on page 11.
2. If the management module is installed in a BladeCenter unit, remove it (see "Removing a management module" on page 15).
3. Open the management module cover by lifting the rear edge.
4. Locate the battery. The battery is typically located on the side of the management module system board closest to the bezel.
5. Insert fingertip under the battery and gently lift. The battery should pop free.
6. If necessary, use a small flat-tip screwdriver to pry the battery loose.
7. Dispose of the battery as required by local ordinances or regulations.

Chapter 4. Configuring the management module

The BladeCenter unit automatically detects the modules and blade servers that are installed and stores the vital product data (VPD). When the BladeCenter unit is started, the management module automatically configures the remote management port of the management module so that you can configure and manage BladeCenter unit components. You can configure and manage BladeCenter unit components from a remote location through the management-module Web interface or the management-module CLI. You can also configure and manage BladeCenter unit components through the local management-module serial port, using the CLI.

You configure only the active management module. The standby management module, if present, receives the configuration and status information automatically from the active management module.

If the management module that you installed is a replacement for the only management module in the BladeCenter unit and you saved the configuration file before you replaced the management module, you can apply the saved configuration file to the replacement management module by using the management-module Web interface or the management-module CLI. See the management-module *User's Guide* or the *Command-Line Interface Reference Guide* for instructions.

Note: There are two ways to configure the I/O modules: through the management-module Web interface or through an external I/O-module port that is enabled through the management module, using a Telnet interface or a Web browser. See the documentation that comes with each I/O module for information.

After the management module is installed, you must configure a remote connection and remote access or a local connection.

You also can use the management-module Web interface or management-module CLI to view some of the blade-server configuration settings. All management modules are preconfigured with the same static IP address. You can assign a new static IP address for each BladeCenter unit. If DHCP is not used and you do not assign a new static IP address for each BladeCenter unit before you attempt to communicate with a management-module interface, only one BladeCenter unit at a time can be added onto the network for discovery. Adding multiple units to the network without a unique IP address assignment for each BladeCenter unit results in IP address conflicts.

Configuring remote access

After you connect the active management module to the network, the Ethernet-port connection is configured in one of the following ways:

- If you have an accessible, active, and configured DHCP server on the network, the host name, IP address, gateway address, subnet mask, and Dynamic Name Server (DNS) server IP address are set automatically.
- If the DHCP server does not respond within 3 minutes after the port is connected to the network, the management module uses the factory-defined static IP address and default subnet address. The management module is inaccessible during this time.

To configure remote access, complete the following steps:

1. Make sure that the client computer is on the same subnet as the management module; then, use a Web browser to connect it to the management module.
2. In the browser **Address** field, specify the IP address that the management module is using:
   - If the IP address was assigned through a DHCP server, get the IP address from your network administrator.
   - The factory-defined static IP address is 192.168.70.125, the default subnet address is 255.255.255.0, and the default host name is MM*xxxxxxxxxxxx*, where *xxxxxxxxx* is the burned-in media access control (MAC) address. The MAC address is on a label on the management module, below the reset button.

Note: If the IP configuration is assigned by the DHCP server, the network administrator can use the MAC address of the management-module network interface to determine which IP address and host name are assigned.

See your management-module *User's Guide* for instructions for configuring the management module.

Communicating with the IBM Director software

The IBM® Director program communicates with the BladeCenter unit through the Ethernet port on the active management module.

To communicate with the BladeCenter unit, the IBM Director software needs a managed object (in the Group Contents pane of the IBM Director Management Console main window) that represents the BladeCenter unit. If the management-module IP address is known, the network administrator can create an IBM Director managed object for the unit. If the IP address is not

known, the IBM Director software can automatically discover the BladeCenter unit (out-of-band, using the Ethernet port on the management module) and create a managed object for the unit.

For the IBM Director software to discover the BladeCenter unit, your network must initially provide connectivity from the IBM Director management server to the management-module Ethernet port. To establish connectivity, the management module attempts to use DHCP to acquire its initial IP address for the Ethernet port. If the DHCP request fails, the management module uses the static IP address that is assigned to it. Therefore, the DHCP server (if used) must be on the management LAN for your BladeCenter unit.

Note: For I/O module communication with the IBM Director management server through the management-module external Ethernet port, the I/O-module internal network interface and the management-module external interfaces must be on the same subnet.

If you do not want to keep the factory-defined static values, you can configure the static IP address, host name, and subnet mask for the management module through the Web interface.

Appendix A. Getting help and technical assistance

If you need help, service, or technical assistance or just want more information about IBM products, you will find a wide variety of sources available from IBM to assist you. This section contains information about where to go for additional information about IBM and IBM products, what to do if you experience a problem with your system, and whom to call for service, if it is necessary.

Before you call

Before you call, make sure that you have taken these steps to try to solve the problem yourself:

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system and any optional devices are turned on.
- Use the troubleshooting information in your system documentation, and use the diagnostic tools that come with your system. Information about diagnostic tools is in the *Problem Determination and Service Guide* on the IBM *Documentation* CD that comes with your system.
- Go to the IBM support Web site at http://www.ibm.com/systems/support/ to check for technical information, hints, tips, and new device drivers or to submit a request for information.

You can solve many problems without outside assistance by following the troubleshooting procedures that IBM provides in the online help or in the documentation that is provided with your IBM product. The documentation that comes with IBM systems also describes the diagnostic tests that you can perform. Most systems, operating systems, and programs come with documentation that contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the documentation for the operating system or program.

Using the documentation

Information about your IBM system and preinstalled software, if any, or optional device is available in the documentation that comes with the product. That documentation can include printed documents, online documents, readme files, and help files. See the troubleshooting information in your system documentation for instructions for using the diagnostic programs. The troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software. IBM maintains pages on the World Wide Web where you can get the latest technical

information and download device drivers and updates. To access these pages, go to http://www.ibm.com/systems/support/ and follow the instructions. Also, some documents are available through the IBM Publications Center at http://www.ibm.com/shop/publications/order/.

Getting help and information from the World Wide Web

On the World Wide Web, the IBM Web site has up-to-date information about IBM systems, optional devices, services, and support. The address for IBM System x® and xSeries information is http://www.ibm.com/systems/x/. The address for IBM BladeCenter® information is http://www.ibm.com/systems/bladecenter/. The address for IBM IntelliStation® information is http://www.ibm.com/intellistation/.

You can find service information for IBM systems and optional devices at http://www.ibm.com/systems/support/.

Software service and support

Through IBM Support Line, you can get telephone assistance, for a fee, with usage, configuration, and software problems with System x and xSeries servers, BladeCenter products, IntelliStation workstations, and appliances. For information about which products are supported by Support Line in your country or region, see http://www.ibm.com/services/sl/products/.

For more information about Support Line and other IBM services, see http://www.ibm.com/services/, or see http://www.ibm.com/planetwide/ for support telephone numbers. In the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

Hardware service and support

You can receive hardware service through IBM Services or through your IBM reseller, if your reseller is authorized by IBM to provide warranty service. See http://www.ibm.com/planetwide/ for support telephone numbers, or in the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

In the U.S. and Canada, hardware service and support is available 24 hours a day, 7 days a week. In the U.K., these services are available Monday through Friday, from 9 a.m. to 6 p.m.

IBM Taiwan product service

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台灣國際商業機器股份有限公司
台北市松仁路 7 號 3 樓
電話：0800-016-888

IBM Taiwan product service contact information:
    IBM Taiwan Corporation
    3F, No 7, Song Ren Rd.
    Taipei, Taiwan
    Telephone: 0800-016-888

Appendix B. Notices

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Important notes

Processor speeds indicate the internal clock speed of the microprocessor; other factors also affect application performance.

CD drive speeds list the variable read rate. Actual speeds vary and are often less than the maximum possible.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for approximately 1000 bytes, MB stands for approximately 1 000 000 bytes, and GB stands for approximately 1 000 000 000 bytes.

When referring to hard disk drive capacity or communications volume, MB stands for 1 000 000 bytes, and GB stands for 1 000 000 000 bytes. Total user-accessible capacity may vary depending on operating environments.

Maximum internal hard disk drive capacities assume the replacement of any standard hard disk drives and population of all hard disk drive bays with the largest currently supported drives available from IBM.

Maximum memory may require replacement of the standard memory with an optional memory module.

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